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Exercises to develop skill in map reading in grade four

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Thesis

EXERCISES TO DEVELOP SKILL IN MAP READING
IN GRADE FOUR

Submitted by

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CHAPTER I

STATEMENT OF THE PROBLEM

The purpose of this study is to construct a workbook of teaching exercises to develop map skills in grade four.

According to Whipple:¹

Instruction in map reading in the elementary school is generally out of harmony with the facts of child growth and development. In spite of the widely accepted principle that readiness on the part of the learner is required for actual learning, pupils are frequently faced at the onset with the fully developed map.

Kohn² declares:

Maps are not 'pictures' of a portion of the earth's surface, but 'symbolic representations.' To read maps intelligently, one must learn to translate these symbols into realities. Each new symbol must be carefully introduced and the difficulty of the map should be gradually increased as the children's ability to read map symbols increases.

Incidental teaching or sporadic attention to maps will not result in progressive improvement; thus, an attempt will be made in this study to develop an understanding of maps through a series of exercises which progress step by step from the simple to the complex under the direct guidance of the teacher.


Investigation by Stapleton,\textsuperscript{1} Diggins,\textsuperscript{2} Spelman,\textsuperscript{3} and Moody\textsuperscript{4} provided definite evidence that a knowledge of geographic terms is a prerequisite for efficient map reading; therefore, a great deal of emphasis will, necessarily, be placed on the acquisition of an adequate vocabulary.

\textsuperscript{1}Mary Ellen Stapleton, "Map Terms Used in Eight Fifth Grade Geography Texts" (unpublished Master's thesis, Boston University, Boston, 1946), 89 pp.

\textsuperscript{2}Grace Lidwin Diggins, "The Construction and Evaluation of a Test on Geography Terms" (unpublished Master's thesis, Boston University, Boston, 1948), 64 pp.


\textsuperscript{4}Beatrice D. Moody, "Three Diagnostic Tests to Establish Specific Vocabulary Needs for Middle Grade Geography" (unpublished Master's thesis, Boston University, Boston, 1946), 77 pp.
CHAPTER II
REVIEW OF LITERATURE

The teaching of geography involves a greater responsibility today than at any other time. Modern means of transportation and communication are compelling us, in effect, to live closer and closer to other peoples of the world. It is inevitable that we must have ever increasing contact with them.

The greater interdependence among nations since the war has definitely increased the need for understanding other people if we are ever going to have world peace. This understanding requires a knowledge of where men live, how they are related to their own natural environment and how they are related spatially to other peoples throughout the world. "Maps and globes are our best guide and our means of visualizing the space qualities of these relationships."¹

According to Renner,² "The map is by far the most important of all the major visual instruments in education." In spite of this fact, the map is the most neglected of all visual aids because its nature is misunderstood by many teachers.

¹Clyde Kohn, op. cit., p. 130.

As a result, Renner\(^1\) contends, "A great majority of the American people possess warped, distorted, foreshortened, or inadequate ideas concerning things which involve space relationships."

Maps as Instructional Aids.--- Whittemore\(^2\) believes that each of the social sciences makes a contribution to the methods of studying problems through the development and use of a special approach. The method of studying problems through maps is one of the major contributions of geography.

Holtz\(^3\) points out, "Maps are the resultant record of actual discovery, exploration, survey, measurement, and development of a region, and depict in shorthand what would take many pages of text to describe."

Kohn\(^4\) stresses the fact that maps as a tool of instruction serve a five-fold function:

1. They show the location and arrangement of things both cultural and natural on the face of the earth.

2. They are a means of expressing the associations which man has established with the land.

3. They are a means of plotting phenomena so that their interspatial relationships may be recognized readily.

\(^1\)Renner, loc. cit.


\(^4\)Kohn, op. cit., p. 130.
4. They enable the reader to grasp all the essential traits of a region.

5. They serve as a source of ideas concerning the social, political, and economic effects of the distribution of phenomena.

Wesley\(^1\) claims that maps, as graphic representations of the earth, are the basic tools for the adequate presentation of the fundamental geographic concepts, such as the size and shape of the earth and its place in the universe. He contends that the concepts of climate, seasons, zones, longitude, latitude, elevation, and the relative areas of land and water would be difficult to understand without the use of a map or globe.

Moore\(^2\) emphasizes the fact that:

Maps in textbooks are just as rich in information and are just as concrete a statement of the relation which exists between cause and effect as is the textual material on the neighboring pages, provided the child understands the language of the various maps.

Saale\(^3\) defines maps as abbreviated compilations of knowledge and claims that things that are non-descript can best be illustrated and represented through the use of maps.

Map Abilities to be Developed in Grade Four.-- Uttley\(^4\)

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believes that an initial world understanding is possible of attainment by the end of the fourth grade. This understanding of the world would be based on that of simple direct relations of certain human activities to contrasted types of natural environment at different distances from the equator.

Certain abilities which would develop as a result of these understandings were listed in her article.

The following abilities definitely applied to map readings:

1. To recognize the regions studied on a simple map.
2. To apply sun behavior understandings when describing simple seasonal activities.
3. To read symbols of natural and cultural features on simple maps.
4. To read directions.
5. To read relationships into a map.
6. To recognize sun behavior lines, direction lines, continents by name, and oceans and larger seas by name.
7. To read directions by means of north-south and east-west lines.
8. To read comparative distances.
9. To read into the globe or hemisphere map seasonal conditions associated with distance from the equator.
10. To use correctly technical terms such as: equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle, North Pole, South Pole, continent, hemisphere, mountain range, peninsula, strait, and island.
11. To recognize simple symbols.
12. To associate locational facts with human activities.
An investigation by McGuire\(^1\) listed approximately the same abilities as the ones to be developed by the end of the fourth grade.

Knowledge of Geographic Terms a Prerequisite for Map Interpretation. Many of the studies that have been completed prove that a knowledge of geographic terms is a prerequisite for map interpretation.

The following summary of these investigations indicates great lack of clear, accurate meaning of words.

When Stapleton\(^2\) made her study of map terms used in eight fifth grade geography texts, she found more than eight hundred words and phrases which applied to map reading. She reduced her initial list to one of five hundred fifty-two terms by eliminating the ones that differed insignificantly from the others.

Stapleton felt that further investigation might show that all of these five hundred-fifty-two terms might not be essential. She did, however, believe that approximately four hundred of them would need to be mastered by the child before he completed the elementary grades if he were to learn to read maps well.

As more than 25 per cent of these terms were used in all eight of the fifth grade texts analyzed, she concluded that at

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\(^2\)Stapleton, \textit{op. cit.}, p. 84.
least one hundred thirty-two of these terms are commonly con-
sidered necessary by a large percentage of the writers of fifth
grade geography texts.

Stapleton's findings also revealed marked differences in
the stress which various authors put upon careful explanation
of the terms introduced. She emphasized the fact that it was
the teacher's responsibility to note those terms which are not
sufficiently explained and supplement them accordingly.

Diggins\(^1\) constructed a multiple choice test on essential
geography terms for grades four, five, and six. This test was
administered to a pilot group of sixty fifth grade pupils,
twenty-eight boys and thirty-two girls in two different locali-
ties of a metropolitan area.

After a few minor revisions, the test was administered to
a population of 465 fourth, fifth, and sixth grade pupils in a
metropolitan area. The groups varied in social and economic
status.

The scores\(^2\) on this test clearly indicated a great lack
of knowledge of map terms on the part of the pupils tested.
The highest score in any grade was 76 out of a possible 81,
and this was made by a sixth grader. One hundred sixty-four
or 35.26 per cent had scores better than 50. Sixty-nine or
14.84 per cent had scores below 30. Two hundred thirty-two or
49.89 per cent had scores from 30 through 50.

\(^1\)Diggins, op. cit., p. 15.

\(^2\)Ibid., p. 44-45.
Diggins' findings revealed that the ability to read does not carry over from one content subject to another. In geography, children must receive specific training in the comprehension of specific meanings which apply to technical terms.

Moody\(^1\) asserts that pupils left to their own resources often are unable to recognize their need for assistance. For this reason, direct instruction in the meaning of words is necessary for accuracy of comprehension and economy of time.

Spelman\(^2\) constructed an achievement test to measure map skills abilities of intermediate grade children. This test included eighty-two multiple choice items. These were constructed to include the varied map skills necessary in intermediate grades.

Three towns were chosen for this testing experiment on the basis that there were approximately three thousand pupils available for testing, they provided a good sampling of the various socio-economic levels, and they were within a fifteen-mile radius of Boston.

A total of 2,649 were tested. A statistical analysis was made of one-third of the tests. A critical ratio of 10.8 was found between grades four and five, and 5.4 between grades five and six. The critical ratios indicated that there was a statistically significant difference between the means of the

\(^1\) Moody, op. cit.

three grade levels. These means were: grade four, 36.1; grade five, 46.9; grade six, 52.3.

As a result of this investigation, a recommendation was made that a workbook of teaching and practice exercises in the simplest skills be drawn up for grade four.

Littlefield\(^1\) administered a test on map reading and interpretation to 200 pupils in grades six, seven, and eight. The results indicated that I.Q. had little bearing on performance if skills had not been learned. Definite lack of teaching on map skills was evident.

Moody\(^2\) tried to establish some specific vocabulary needs for middle grade geography by means of three author-built diagnostic tests. She hoped that the results would show the words needing special attention and thus serve as a guide for the teacher.

Moody's study shows definite evidence of the lack of mastery of words needed in the study of geography.

Howe\(^3\) measured the ability of pupils in grades four, five, and six to understand and interpret map symbols. He reported that the low percentage of correct answers in the major portion


\(^{2}\)Moody, op. cit.

of the test was convincing evidence that children's concepts in map work are inexact and obscure.

Wesley\(^1\) states, "The acquisition of a new word is a milestone on the march toward social understanding."

According to Cole,\(^2\) many teachers have the idea that words are of little significance, and that only ideas are important. She believes, however, that a list of the essential words in a subject is substantially a list of the outstanding elementary ideas which must be mastered for the understanding of the subject.

Cole\(^3\) asserts, "The initial miles of the road to learning are paved with specific individual concepts - not with generalities." She points out that the quickest way to bring about comprehension is to insist upon a clear grasp of the elementary concepts upon which the general attitude must rest.

"The essential technical words are thus to be regarded as the thought elements of a subject. They are, therefore, not mere words but the sine qua non of the complicated reaction known as thinking."\(^4\)

Cole\(^5\) claims that an inadequate vocabulary is not due to the inability of the pupil to learn but to the fact that text

\(^1\)Wesley, op. cit., p. 66.
\(^3\)Loc. cit.
\(^4\)Loc. cit.
\(^5\)Ibid., p. 19.
and teacher fail to isolate the essential core of terms from the several hundred others that are of no great moment. In her manual, she listed 352 fundamental geographic terms. This list included some terms that are beyond the needs of the elementary school child. There are 122 of these terms, however, that are definitely used in fourth grade geography texts in describing divisions of the earth, measurements of the earth's surface, water and structures built on or near the water, and land formations.

Specific instruction increases comprehension.—Schenck's study showed that careful, exact teaching along definite lines will produce in the average child the ability to interpret accurately any map's fund of knowledge.

In her study Schenck evaluated a workbook of exercises designed by Brooks to assist children in acquiring the skills necessary to understand and interpret maps successfully.

As a part of the evaluation a pretest was given to 130 of the 200 fifth grade pupils in a small city in eastern Massachusetts. A series of exercises compiled by Brooks were then administered. One exercise per day was used for eight weeks. A final test was then given.


3Loc. cit.
The critical ratio of the pretest and final test was found for the total group. The ratio of 6.21 was found to be statistically significant in favor of the final test. This substantiated the purpose of the study which was to prove that a workbook on a series of exercises in map reading will improve the pupils' skill in reading and interpreting maps.

Comprehension is based on gradation of concepts. — The preceding summary and pertinent facts seem to indicate that sounder methods of map interpretation are needed.

James¹ feels that we should not assume any understanding of the symbols or any ability to read the message of a map on the part of the student when maps are first introduced. He says, "The approach to the development of map-reading skill must come step by step, just as the reading of words and sentences is taught."

As Kohn² expresses it, "Children need to learn how to read maps before they can read maps to learn."

Learning to read maps is a slow process and a complete understanding of maps is gained only by presenting the geographic concepts with careful gradation.


² Kohn, op. cit., p. 127.
According to Parker:¹

Effective gradation in the development of map-reading ability involves the introduction of new objects, new symbols and new terms at those points where they first are needed for geographic purposes and in such a manner that thereafter the child is able to use them efficiently in getting geographic information for himself.

Wesley² maintains that, "One of the conditions of learning is the proper grading of content. Meeting this condition involves adjustment between the pupil and what he is to learn."

Map instruction, therefore, must be modified to harmonize at each level of advancement with the actual intellectual capacities, interests and needs of the children.


²Wesley, op. cit., p. 65.
CHAPTER III
CONSTRUCTION AND TESTING OF EXERCISES

Construction of exercises.-- In the construction of exercises, certain preliminary procedures were necessary. Foremost among these was the examination and analysis of seven recently published fourth grade texts. The latter were studied for the purpose of establishing the essential vocabulary employed in map work.

Table I shows the seven texts used in this selection of vocabulary.

TABLE I
TEXTS USED FOR THE SELECTION OF VOCABULARY

<table>
<thead>
<tr>
<th>Book</th>
<th>Author</th>
<th>Title</th>
<th>Publisher</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Atwood, W.W.</td>
<td>Visits in Other Lands</td>
<td>Ginn</td>
<td>1951</td>
</tr>
<tr>
<td></td>
<td>Thomas, H.G.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Barrows, H.H.</td>
<td>Our Big World</td>
<td>Silver Burdett</td>
<td>1951</td>
</tr>
<tr>
<td></td>
<td>Parker, E. P.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>C</td>
<td>McConnell, W.R.</td>
<td>Geography of Many Lands</td>
<td>Rand McNally</td>
<td>1952</td>
</tr>
<tr>
<td></td>
<td>McGuigan, J.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>D</td>
<td>Meyer, J.C.</td>
<td>Friends Far and Near</td>
<td>Follett</td>
<td>1949</td>
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<td></td>
<td>Sorenson, F.E.</td>
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<tr>
<td></td>
<td>McIntire, A.</td>
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<tr>
<td>E</td>
<td>Smith, J.R.</td>
<td>Neighbors Around the World</td>
<td>Winston</td>
<td>1952</td>
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<td></td>
<td>Sorenson, F.E.</td>
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<tr>
<td>F</td>
<td>Stull, D.</td>
<td>Journeys Through Many Lands</td>
<td>Allyn &amp; Bacon</td>
<td>1952</td>
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<td></td>
<td>Hatch, R.W.</td>
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<tr>
<td>G</td>
<td>Thurston, E.L.</td>
<td>Homelands of the World</td>
<td>Iroquois</td>
<td>1953</td>
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<tr>
<td></td>
<td>Hankins, G.C.</td>
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</table>
A preliminary list of geographical terms was obtained by consulting the index of one fourth grade geography text.\textsuperscript{1} A chart was set up on which these words appeared alphabetically. Each text was then examined page by page to determine how many of the words were defined. If the term was defined, a check mark was placed beside it under the proper publisher. After all seven texts had been examined to see which words the various authors considered important enough to define, the final choice of words was made. This choice of words was based on one or both of the following criteria: first, the words were defined by three or more of the authors; and second, they were terms which the writers considered essential for the proper interpretation of maps.

Some words which appeared with similar frequency were not utilized because of their minor importance in the interpretation of maps and because they were better explained through text pictures.

Table II shows the vocabulary chart. The starred words are those which were ultimately employed in the exercises.

TABLE II
WORDS DEFINED IN THE SEVEN FOURTH GRADE GEOGRAPHY TEXTS

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<tr>
<th>Term</th>
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**WORDS DEFINED IN THE SEVEN FOURTH GRADE GEOGRAPHY TEXTS**

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Exercises based on the vocabulary employed in the seven texts were constructed for the purpose of developing the following specific abilities:

1. Reading symbols and direction on simple maps.
2. Recognizing the same symbols on globes as already learned on maps.
3. Recognizing continents, oceans, and larger seas.
4. Locating any place with regard to the equator, tropics, circles, and poles.
5. Correctly using certain geographic terms, such as: island, gulf, peninsula, bay, strait, isthmus, and like terms.

The exercises consisted of teacher-pupil activities and independent pupil activities.

The following exercise illustrates a teacher-pupil activity.

**LAND AND WATER FORMS**

Teacher-Pupil Activity

Here is an imaginary map. The places which are numbered have special names.

---

1. Number 1 shows us part of a large body of land called a continent.
   Make a circle around number 1.

2. Number 2 shows us a piece of land almost surrounded by water. It is called a peninsula.
   Draw a cross (X) through number 2. Show that you know where the peninsula is by going around the edge with your finger.
   Now, trace the coast of the peninsula with your red crayon.

3. Number 3 shows us land surrounded entirely by water. It is called an island.
   Make a (✓) on top of number 3. Go around the edge of the island with your purple crayon.

4. Number 5 shows us a body of water surrounded by land. It is called a lake.
   Draw a line (—) through number 5. Color the lake blue.

5. Number 6 shows us a body of water going into the land. It is called a bay.
   Put a small circle around number 6. Go along the coastline of this bay with your finger.
   Now, put this coastline in with your black crayon.

6. Number 7 shows us a large body of water going into the land. It is like a large bay. It is called a gulf.
Make a square around number 7. Go around the coast of the gulf with your green crayon.

7. Number 4 shows us the ocean.
   Draw two lines (//) through number 4.
   Color the ocean, bay and gulf blue.

Study these sheets until you can answer the questions below.

1. What is a continent?
2. What is a peninsula?
3. What is an island?
4. What is a lake?
5. What is a bay?
6. What is a gulf?

Exercises to be performed independently by the pupils followed many of the teacher-pupil activities. The intent of these pupil activities was not that of probing the pupils' reception of the specific subjects discussed, but that of repeating and emphasizing the high points of the subjects presented in the teacher-pupil activities.

The following is typical of a pupil activity in the form of a review.

REVIEW OF LAND AND WATER FORMS

Pupil Activity

The following bodies of land and water are shown on the map below:
1. an island ...... land surrounded by water
2. a bay ........ part of the ocean going into the land
3. a peninsula .... land almost surrounded by water
4. a gulf .......... a large bay
5. an ocean ...... a very large body of water
6. a lake ........ a body of water surrounded by land

Fill in the blanks below by using the groups of words given above on the left.

1. Letter A pictures
2. Letter B pictures
3. Letter C pictures
4. Letter D pictures
5. Letter E pictures
6. Letter F pictures
The letters on the map are used instead of the names of the bodies of land or water. Beside each letter on the map write the name of the land or water form that it pictures.

1. Color the peninsula dark brown.
2. Color the lake blue.
3. Draw a small sailboat in the gulf.
4. Draw in a road going from the lake to the bay.
5. Color the island light brown.

The directions for carrying out the exercises as well as the mechanics for answering questions were made as simple as possible.

The exercises employed such types of questions as recall, completion, multiple choice, and matching.

Through the use of a wide variety of activities, the pupils' interest was sustained.

The following are typical of activities presented:

1. Filling in diagrams
2. Putting names and marks on maps
3. Coloring maps and parts of maps
4. Working out riddles
5. Making original drawings
6. Working out crossword puzzles

The complete unit of 50 exercises consisted of 27 teacher-pupil activities and 23 pupil activities.

These exercises could be used independently or to supplement the work in any fourth grade text.
Evaluation of exercises.-- The subject matter in exercises one to nine had been covered in class before this series of exercises was set up. As the children were familiar with the terms covered, it was impossible to evaluate these exercises. Therefore, only forty-one of the total group of fifty exercises were administered to two fourth grades for evaluation purposes.

The forty pupils using these materials resided in two Massachusetts towns, were of average mental ability, and came from average American homes.

An exercise was administered each day during an eight-week period. The exercises involving teacher-pupil activities were conducted with special care so that each step of the exercise was developed gradually. While discussing and completing the teacher-pupil activities, continual pupil guidance was afforded.

During the presentation of all workbook exercises, each teacher noted weak points for later revision. An evaluation sheet was used to judge the results of each exercise. The conclusions were based on the following:

1. General class reaction
2. Occurrence of strong points
3. Occurrence of weak points
4. Amount of time
5. Suggestions for revision of exercise

It was found that the amount of time needed for the exercises varied from ten to thirty-five minutes depending on
whether the exercises were for teaching purposes or for review.

An analysis of the evaluation sheet indicated that several exercises were not valid and should be omitted. The pupil activity below is one of these.

**FINDING DIRECTIONS BY THE SUN**

**Pupil Activity**

In our part of the world, shadows at noon always point north.

The boy in the picture below is facing the sun at noon time.

![Illustration of a boy facing south with his shadow pointing north]

The boy is facing ____________.

His shadow is pointing ____________.

Complete the sentences below by putting a check (✓) in the box beside the right answer.

**Remember:** When you are facing north, east is on your right and west is on your left. When you are facing south, east is on your left and west is on your right.

1. North in this picture would be
   - [ ] at the bottom
   - [ ] at the top
   - [ ] on the right
   - [ ] on the left
2. South in this picture would be

☐ at the bottom
☐ at the top
☐ on the right
☐ on the left

3. East in this picture would be

☐ at the bottom
☐ at the top
☐ on the right
☐ on the left

The direction directly opposite north is ___________.
The direction directly opposite east is ___________.

In the above exercise, the placing of "south" at the top of the picture completely confused the pupils, the result being many incorrect responses.

Some of the exercises received good results, but it was felt that minor revisions would make the exercises more effective. The following is one that was revised.

**REVIEW OF CONTINENTS AND OCEANS**

Pupil Activity

The seven continents or large divisions of land are:

1. Asia
2. Africa
3. North America
4. South America
5. Antarctica
6. Europe
7. Australia
Use the two pictures of the globe on your last work sheet to complete the following:

1. Which two bodies of land are so closely joined that they look like one? ___________________ ___________________

2. These two continents are sometimes called ___________________.

3. What ocean lies between the continents of North America and Europe? ___________________.

4. What ocean lies between South America and Africa? ___________________.

5. The Indian Ocean lies between the continents of ___________________ and ___________________.

6. If we wanted to visit Europe, we would cross the ___________________ Ocean.

7. What three oceans touch the shores of North America? ___________________ ___________________ ___________________.

8. South America lies between the ___________________ Ocean and the ___________________ Ocean.

9. The three oceans which touch the coast of Asia are the ___________________, ___________________, and ___________________ Oceans.

10. The ___________________ Ocean is the largest.

11. The ocean which lies south of Asia is the __________ Ocean.

12. The continent of Africa is connected to the continent of ___________________ by a narrow strip of land.
In number 1 many named North America and South America as the ones that were closely joined. Number 5 received the following answers: Africa and Asia, Asia and Australia, Africa and Australia. Europe and Asia were given as the answer to number 12.

The above exercise may have achieved better results if numbers one, five, and twelve had been worded in the following manner:

1. The continent of Europe is so closely joined to the continent of ___________ that they look like one.
5. The Indian Ocean lies between the continents of ___________ on the east and ___________ on the west.
12. The continent of ___________ is southwest of Eurasia.

Numbers 3 and 7 were changed from questions to statements so that the same type of response would be required for all.

Many exercises required no revision. The exercise below is an example.

**REVIEW OF THE OCEANS**

Pupil Activity

**Riddles**

Answer each of these riddles by putting in the blanks one of the following oceans:

**ARCTIC PACIFIC ATLANTIC INDIAN**

1. The small word if is in my name. Can you spell my name?
2. I am one of a tribe of people. What am I called?

3. My name ends with the sound that a clock makes. Which ocean am I?

4. You like to go swimming in me. What is my name?

5. I have a small word at the beginning of my name and another small word at the end. My name is

6. I am the largest of the four oceans. I am the

7. I am frozen most of the year. What am I called?

8. A large oil company has the same name that I have. I am called

After the 50 exercises were evaluated, three were eliminated, and 24 were revised. The final unit consisted of 26 teacher-pupil activities and 21 pupil activities.

The following chapter contains the revised exercises in the form of a workbook.
CHAPTER IV

THE WORKBOOK
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1. A PLAN
Teacher-Pupil Activity

A good collection of floor plans, pictures of different types of houses, and, if possible, one or more blueprints should be available.

Oral Discussion:

1. Do any of you live in a home that was built by your father?

2. Did any of your fathers or brothers help someone build a house?

3. What's the first thing that a person would do if he wanted to build a new home? (Buy land)

4. What are some of the things that he would have to think about when he picks out his piece of land?
   
   (a) Price
   (b) Size of plot
   (c) Soil
   (d) Drainage
   (e) Facilities available such as: water, gas, sewer connections, stores, schools, telephone, electricity, churches, and transportation.

5. After he has selected his site, what does he need to decide? (Type of home, such as: Cape Cod, ranch style, Dutch Colonial, etc.)

6. Have any of you watched the men as they build a new
7. How do they know what to do?
(They follow a plan or a blueprint.)

8. Can anyone explain what a plan or blueprint is?
Explanation: A **plan** is an outline picture of the house you are going to build. It is drawn the way it would look if it had no roof on it and you were looking down into it from a place above it.

A **blueprint** is a copy of a drawing made in white lines on a blue ground by exposing to strong light sensitized paper placed under a tracing of the original.¹

9. Show plans of houses taken from magazines or newspapers.
(Use an opaque projector, if there is one available.)

10. What are some of the important things that a plan shows?
Location and size of each room.
Location of doors, windows, stairways, closets, built-in bookcases, china closets, kitchen cabinets, sink, counters, etc.

11. Can anyone think of anything else that would need to be built from a plan?
(Bridges, roads, autos, planes, model toys, etc.)

12. Do you think that we could draw a plan of our school room?

13. We will try it tomorrow. Meanwhile, see if you can find a plan to show to the class.

2. USING A SCALE

Teacher-Pupil Activity

Distribute the teacher's and the pupils' plans so that every child or group of children has a plan to use.

Oral Discussion:
1. Look at your plan. What does it show?

As the children name the different things shown on the plans, let them make a list on the board.

2. Which of these would we need to show on the plan of our room so that a person reading it would have a good picture of the room?

3. Would our plan include anything that was not shown on the house plan?

(This would depend on the room.)

4. We can't draw the room the size that it really is. How can we give the reader a true picture of the size of the room?

Explain that the room will be drawn to scale. When something is drawn to scale, a smaller measurement is used to stand for the real measurement. For example, 1" on the paper could stand for 4' in the room.

5. Give each child a strip of paper 1" x 6". Explain that they are going to use this strip of paper as they would a ruler for measuring except that each inch is going to stand for a
larger measure than it really is. Each inch is going to stand for 3' in the room. Mark the strip at 1" intervals as in this sample.

Scale 1" = 3'

6. Now use the strip to draw on paper an outline for a 15' x 18' room.
7. If additional practice is needed, turn the measuring strip over and remark using the scale 2" = 4'. Measure for a 12' x 12' room.

8. Let the children measure the room and draw a plan on the board. Use the scale of 1" = 1' or 1" = 2'. Keep all measurements in a separate place on the board so that they will
be available for later on when the children make their individu-
al plans.

3. **RECOGNIZING AND USING SYMBOLS**

   Teacher-Pupil Activity

   **Oral Discussion:**

   Yesterday we drew an outline of our room to scale. Today
   we are going to measure the doors, windows, blackboards, and
   closet and add these to our plan.

   1. How are we going to show that we are putting in these
      things?

   2. How were they shown on the plans that you studied?

   3. Bring out the fact that it is not always possible to
draw the real thing so we use little pictures of the real
   things. Explain that these signs or small pictures are called
   **symbols** of the real thing. Through oral discussion and refer-
   ence to sample plans set up the following or similar symbols:

   - doorways
   - windows
   - blackboards
   - cabinets

   4. As each is measured, add the symbols to the plan on
   the board. Add all measurements to those already set aside for
   future use.

   5. Will people looking at this plan know that it is a plan
   of a schoolroom?

   6. What other things do you see in your schoolroom that
   you would not see in an ordinary room? (These would vary ac-
7. What symbols could we use for these things? Add them to the plan on the board.

4. **INDIVIDUAL SCALE DRAWING OF THE SCHOOLROOM**

Teacher-Pupil Activity

**Oral Discussion:**

Today you are going to draw your own plan of the room. You will use the measurements that are given on the board. Your paper is much smaller than the board so you will have to use a different scale.

1. What do you think a good scale would be for your plan?

   Probably 1" = 3', or 1" = 4' would be best depending on the size of the room.

2. Draw several rectangles on the board the same size as the paper that the children are going to use. Let the children try out the scales that they suggest.

3. Let the children choose the one that they would like to use.

4. Work together in setting up the outline of the room so that each child will have a clearer idea of what he is doing.

5. Let the children complete their plans by themselves giving help only where needed.

6. Add all symbols that are needed.
5. **KEY OR LEGEND**

Teacher-Pupil Activity

**Oral Discussion:**
1. You have finished your plan. Do you think that your mother and father will be able to read this plan as easily as you can? Why not?
2. How can we make it easier for them to read this plan?
3. How shall we do this?

**Explanation:**
Most maps have a boxed section at the bottom which contains an explanation of the symbols or signs used on the plan or map. The scale is also shown. This section is called the key or legend. A person needs to read the key in order to get the whole story.

![Key and Scale Diagram]

4. Let the children add the key and scale to the plan.
6. A PLAN
Pupil Activity

A plan is an outline of the real thing.
The picture below is a plan of a real living room.

Directions:
1. Here is a list of symbols and the pieces of furniture for which they stand.
   - ○ table
   - □ sofa or divan
   - □ chair
   - □ Television set
   - × lamp
   - ▪️ ▪️ ▪️ bookcase

2. Put the furniture in place on the plan using the symbols given. Arrange the furniture carefully. You may use the symbols as many times as you need to in order to arrange the room well.
7. A MAP
Teacher-Pupil Activity

Oral Discussion:

When we draw a plan of some part of the earth, we call it a map. A map may show any part of the earth, large or small.

Before you can draw a true map of part of the earth, you need to see it as it really is.

Today we are going to take a walk around our school. When we return to the room, we will draw a plan or map of our school and its grounds.

We will take paper and pencils with us and make a rough drawing of the things we see while we are walking.

As we walk around the building, be thinking of symbols that you can use to stand for the real things that you see, such as trees, playground equipment, ash barrels, flag pole, fences, roadways, etc. Notice the direction that the school faces.

When the children return to the room, discuss
1. the shape and size of the school grounds,
2. the shape of the school and its location within the area,
3. the things that they saw that would need to be placed on the plan and symbols for them.

Give the children paper and let them draw a map of the school area.
8. UP-DOWN

Teacher-Pupil Activity

Oral Discussion:

1. How do you go home from here?

2. Do you really go up one street and down another, or do you go in a particular direction?

3. Let's think about some things that happen that really mean to go up and down. (Through oral discussion bring out facts similar to the ones below:)

   a. You push a window up and you pull it down.
   b. You go up to the attic.
   c. You go down to the cellar.
   d. Airplanes go up and come down.
   e. The mercury in a thermometer expands when it gets hot and goes up the glass. It contracts and goes down the glass when it gets cold.
   f. An escalator carries you up to the floor above or down to the floor below.
   g. An elevator goes up or down.
   h. You go down a ladder.
   i. You go down a slide.
   j. You go up and down in a swing.
   k. You go up one side of a hill and down the other side.
   l. Rain comes down.
   m. Smoke goes up a chimney.
n. You put up a flag in the morning and take it down at sunset.

4. When you really go down, the movement or motion is toward what? (The ground or down into the earth)

5. When you really go up, the movement or motion is toward what? (The sky or a place above you)

6. If you don't go up or down to reach your home, what do you do? (Move in a certain direction)

7. If no one gives the above answers, ask leading questions, such as the following:
   a. What happens to our birds in the winter time?
   b. What do they do in the summer time?
   c. What are they doing when they fly north or south? (They are moving in a particular direction along their airway route.)

8. What does the word "direction" mean?
   (If the children have learned to use a dictionary, have them look up the word. If this skill has not been developed, the teacher should present the definition. --- "A line of motion."

9. Does anyone know the four main directions?
10. How can we find out where these directions are?
   (Use a compass.)

---

11. Can anyone bring in a compass for us to use tomorrow?
   (If not, ask for volunteers to make a copy of a compass, or use an opaque projector.)

9. FINDING CARDINAL DIRECTIONS BY USING A COMPASS

Teacher-Pupil Activity

1. Using a real compass, a drawing, or a projected model, explain to the children that the magnetized steel needle points toward the North Pole. Show them how to turn the compass so that the needle point and the letter "N" come together. When the needle points to "N", it is pointing north or nearly north.

2. Explain that north is a main or cardinal direction.

3. Let them bring out the fact that south is directly opposite north, that east is to the right of north, and that west on the compass is left of north and opposite east.

4. After they have decided where north is, have them put up signs in the proper places in the room for each of the cardinal directions.

5. Have the children draw a large compass on the floor. Put in the main directions.

6. Let the children take turns being the needle pointing north. As they stand in the center and point north, have them tell what direction is on the right, left, and at the back. Face each cardinal direction and do the same.

7. Play the following game:

   Have the class stand. When a direction is named, the
children quickly jump in that direction. Any child facing the wrong direction has to sit down.

10. CARDINAL DIRECTIONS

Pupil Activity

How well do you remember the main directions? See if you can fill in the blank spaces correctly.

1. When you face north, ________ is to your right.
2. When you face north, ________ is to your left.
3. When you face south, ________ is to your right and ________ is on your left.
4. When you face north, ________ is directly behind you.
5. When you face east, the direction behind you is ________.
6. When you enter the room, you are facing ________.
7. The blackboards are on the ________ and ________ walls.
8. When you are facing the teacher's desk, you are facing ________.
9. The sun shines in the ________ window.
10. The clock is on the ________ wall.
11. Our fire escape is on the ________ side of the building.
12. We play on the ________ side of the school.

Be sure you can spell these four main directions:

NORTH SOUTH EAST WEST
11. IN-BETWEEN DIRECTIONS
Teacher-Pupil Activity

When you studied the compass, you learned that there are four main directions. These four main directions are sometimes called _________ directions.

The letters below stand for the four main directions. Name these directions by putting in the letters that are missing.

N _______ S _______
E _______ W _______

This is a drawing of a compass.

The four long lines stand for the four main directions.

1. Which of these long lines shows where "North" is? Put an N at the end of this line.

2. Find the line that points "South." Put an S at the end of this line.
3. The long arrow on the right points in what direction? Put in the letter that stands for this direction.

4. The last long line is pointing __________. Put the letter that stands for this direction beside it.

* * * * * *

There are four short lines that have no names. These short lines point to in-between directions. They are called in-between directions because they are half-way between two of the main directions. We get their names by putting together the names of two of the main directions.

The direction between NORTH and EAST is called NORTHEAST.
NORTHWEST is half-way between NORTH and WEST.
SOUTHEAST is half-way between SOUTH and EAST.
SOUTHWEST is half-way between SOUTH and WEST.

The names for the in-between directions are very long, so we use letters to stand for these directions.

\[
\begin{align*}
NE &= \text{NORTHEAST} \\
SE &= \text{SOUTHEAST} \\
SW &= \text{SOUTHWEST} \\
NW &= \text{NORTHWEST}
\end{align*}
\]

1. Put these letters in the right places on your compass.

2. Study your compass so that you can draw one without looking at your paper.

3. Learn the names of the in-between directions and the short way of writing each.
12. REVIEWING DIRECTIONS

Pupil Activity

The main or cardinal directions have been put in place on this diagram of the compass.

![Diagram of compass]

The letters below stand for the in-between directions. Tell what each direction is by writing its name on the right line.

NW  
NE  
SE  
SW  

The arrows in the diagram of the compass above stand for the in-between directions. Put the letters that stand for each direction on the right arrow.

JUST FOR FUN

See if you can complete this riddle:

"As I face north, I keep in mind
That ______ of me is straight behind
Then anything that I can see
Straight to my right is ________ of me."
As you already may have guessed
Straight to the left of me is _______."¹

13. MAP OF THE WORLD²


14. THE OCEANS
Teacher-Pupil Activity

If we want to see the world as it really is, we must look at a globe.

A globe is a model, or small likeness of the world. It is round, just as the world is round. A map or picture of the world is painted or pasted on this round ball.

1. What do you play with that is also a model or small likeness of the real thing?

2. Let's look at the globe and see what it is like. The globe shows us that the world is made up of two things. These two things are _________ and _________.

3. What do you see as you look at the two pictures of the globe on your second sheet?

4. How do we usually show water on a map or globe?

5. Is it always shown in the same way?

6. How is it shown on your pictures of the globe?

7. There are four large bodies of water or oceans. As your classmates find the names of these on the globe, write them on these lines.

   1. ____________ Ocean  3. ____________ Ocean
   2. ____________ Ocean  4. ____________ Ocean

8. Now, let's locate these oceans on the wall map. As each is located, write its name on the right line on the globes on your second sheet.

9. Color all of the water blue.
10. Learn to spell the names of the four oceans.

15. REVIEW OF THE OCEANS

Pupil Activity

RIDDLES

Answer each of these riddles by putting one of the following words in each blank:

ARCTIC PACIFIC ATLANTIC INDIAN

1. The small word if is in my name. Can you spell my name?

___________________ Ocean.

2. I am one of a tribe of people. What am I called?

___________________ Ocean.

3. My name ends with the sound that a clock makes. Which ocean am I?

___________________ Ocean.

4. You like to go swimming in me. What is my name?

___________________ Ocean.

5. I have a small word at the beginning of my name and another small word at the end. My name is

___________________ Ocean.

6. I am the largest of the four oceans. I am the

___________________ Ocean.

7. I am frozen most of the year. What am I called?

___________________ Ocean.

8. A large oil company has the same name that I have. I am called the

___________________ Ocean.
16. CONTINENTS
Teacher-Pupil Activity

Maps are flat pictures of parts of our earth. Our earth is made up of large bodies of land and large bodies of water. The bodies of land are called continents. The bodies of water are called oceans and seas. Here, in the order of their size, are maps of the seven continents which make up the earth.¹

Color Asia red.
Color Africa brown.
Color North America yellow.
Color South America blue.
Color Antarctica light purple.
Color Europe orange.
Color Australia green.

1. The largest continent in the world is ____________.
2. The smallest continent in the world is ____________.
3. The United States (U.S.) is part of the continent of ____________.

Practice writing the names of the continents, in the order of their size, in the spaces below.

1. ____________
2. ____________
3. ____________
4. ____________
5. ____________
6. ____________
7. ____________
The two pictures of the globe above show us all the bodies of land and water that make up the world.

Look at the pictures carefully.

1. Do you think there is more land or water on the earth's surface? ______________

2. What did we call the great bodies of water? ______.

3. The great bodies of water are:
   (a) ____________ Ocean    (b) ____________ Ocean.
   (c) ____________ Ocean    (d) ____________ Ocean

4. Put the names of the bodies of water on the maps where they belong. Be sure to put the names on both maps.

---

Great bodies of land also have a special name. They are called ________________.

There are seven of these great bodies of land. They are named on the first sheet.

The names of these seven continents, in order of size, are:

1. ____________.
2. ____________.
3. ____________.
4. ____________.
5. ____________.
6. ____________.
7. ____________.

Europe and Asia are so closely joined that they are sometimes called Eurasia.

Color the seven large bodies of land light brown.
Color the oceans light blue.

18. REVIEW OF CONTINENTS AND OCEANS

Pupil Activity

The seven continents or large bodies of land, in the order of their size, are:

1. Asia
2. Africa
3. North America
4. South America
5. Antarctica
6. Europe
7. Australia

Use the two pictures of the globe on your last worksheet.
to complete the following:

1. The continent of Europe is so closely joined to the continent of ___________ that they look like one.
2. These two continents are sometimes called ___________.
3. The ___________ Ocean lies between the continents of North America and Europe.
4. The ___________ Ocean lies between South America and Africa.
5. The Indian Ocean lies between the continents of ___________ on the east and ___________ on the west.
6. If we wanted to visit Europe, we would cross the ___________ Ocean.
7. South America lies between the ___________ Ocean and the ___________ Ocean.
8. The ___________ Ocean, the ___________ Ocean, and the ___________ Ocean touch the shores of North America.
9. The three oceans which touch the coast of Asia are the ___________ Ocean, the ___________ Ocean, and the ___________ Ocean.
10. The ___________ Ocean is the largest.
11. The ___________ Ocean lies south of Asia.
12. The continent of ___________ is southwest of Eurasia.
19. REVIEW OF CONTINENTS AND OCEANS

Pupil Activity

There are four large bodies of water called oceans.
There are seven large bodies of land called continents.

Directions:

BODIES OF WATER

2. Put P on the Pacific Ocean on both maps.
3. Put AT on the Atlantic Ocean on both maps.
4. Put AR on the Arctic Ocean on both maps.

BODIES OF LAND

Each continent has been given a number. Put the number where it belongs on each map.
1. Asia 6. Europe
2. Africa 7. Australia
3. North America
4. South America
5. Antarctica

The two pictures of the globe above show the world divided into two equal parts. Each of these parts is called a hemisphere.

The word hemisphere means half sphere or half ball.

(Hemi = half; sphere = ball)

These two hemispheres are called the Eastern Hemisphere and the Western Hemisphere.

When we divide the world into two equal parts, we make believe that we can cut right down through the world from the North Pole to the South Pole.

The North Pole is the point farthest north on the earth's surface.

The South Pole is the point farthest south on the earth's surface.

Find these two poles on the maps. Find them on your school globe.

When we divide the world into the Eastern and Western Hemispheres, we draw an imaginary line down through the Atlantic Ocean between North America and Europe and between South America and Africa and down through the Pacific Ocean between Asia and North America and Australia and South America. We go from pole to pole.

The map on the right on your first sheet pictures the Eastern Hemisphere.

1. Write the name on the line below the map.

2. Look at your map of the Eastern Hemisphere. What continents do you see?

3. The continents in the Eastern Hemisphere are:
   (a) _______________
   (b) _______________
   (c) _______________
   (d) _______________
   (e) Part of _______________

4. Can someone show us where these are on the wall map?

---

1Smith and Sorenson, op. cit., p. 25.
The map on the left on your first sheet pictures the Western Hemisphere.

1. Write its name on the line below it.
2. Look at the map carefully. What continents do you see?
3. The continents in the Western Hemisphere are:
   (a) ____________________
   (b) ____________________
   (c) Part of ____________________
4. We live in the ____________ Hemisphere.
5. The ____________ Hemisphere has more water than land.
6. The continent of ____________ is in both hemispheres.
8. Color the continents in the Western Hemisphere yellow.

21. NORTHERN AND SOUTHERN HEMISPHERES

   Teacher-Pupil Activity

You have just learned that the world can be divided into two equal parts called the Eastern and Western Hemispheres by imagining a knife cutting down through the earth from the North Pole to the South Pole.

1. Look at the two maps below.
2. Can you see another way in which the world could be divided into two equal parts?
3. How?

4. Point to this line on your maps.

5. Who can go to the wall map and show us where this line is?

6. What is its name?

You have seen that the earth can also be divided into two equal parts or hemispheres by drawing an imaginary line around the globe halfway between the North Pole and the South Pole. This imaginary line is called the **equator**. It is drawn on the maps on your other sheet, but the name hasn't been put on it. Put its name on the line where it belongs.

The **equator** divides the world into two hemispheres called the **Northern Hemisphere** and the **Southern Hemisphere**.

---

Everything north of the equator is in the Northern Hemisphere. Put the name **NORTHERN** in the two boxes north of the equator.

Everything south of the equator is in the Southern Hemisphere. Put the name **SOUTHERN** in the two boxes south of the equator.

Look at the two maps carefully as you answer the following questions:

1. What three continents are wholly within the Northern Hemisphere?
   (a) ___________ (b) ___________ (c) ___________

2. What two continents does the equator cross?
   (a) ___________ (b) ___________

3. What two continents are partly in both hemispheres?
   (a) ___________ (b) ___________

4. What two continents are wholly in the Southern Hemisphere?
   (a) ___________ (b) ___________

5. What ocean lies completely in the Northern Hemisphere?

6. What oceans lie partly in both hemispheres?
   (a) ___________ (b) ___________ (c) ___________

7. Which hemisphere has a continent of ice and snow?

8. We live in the ___________ Hemisphere.
1. We call the place farthest north on our earth the North Pole. Put an x at the North Pole on the two pictures of the globe above.

2. We call the point farthest south on our earth the South Pole. Make a # at the South Pole on the two pictures of the globe above.

3. The equator is an imaginary line going around the middle of the earth between the North Pole and the South Pole. It divides the earth into two equal parts. Put in the equator on each picture of the globe.

Complete the following:
1. When you put in the equator, you divide the world into

two hemispheres. The half between the equator and the North Pole is called the ________________ Hemisphere.

2. The half between the equator and the South Pole is called the ________________ Hemisphere.

3. The two continents that are partly in both hemispheres are ________________ and ________________.

4. The smallest continent is ________________. This body of land is sometimes called an island-continent because it is surrounded by water.

5. The largest continent is in the ________________ Hemisphere.

6. We live on the continent of ________________.

7. We live in the ________________ Hemisphere.

8. The continent of Eurasia is in the ________________ Hemisphere.

9. Antarctica is in the ________________ Hemisphere.

Color the continents in the Northern Hemisphere red on both maps.

Color the continents in the Southern Hemisphere orange on both maps.

Color the oceans blue.
23. THE IMAGINARY LINES
Teacher-Pupil Activity

The picture on the board is a model of the globe. "The globe, you remember, is a little copy or symbol of the earth. Being the same shape as the earth though very, very much smaller, it helps us see the true shapes of the continents and the directions we would have to travel in going from one place in the world to another.

In order to find places on a globe, and to be able to tell other people where the places are, men have developed a system of lines on the globe, like streets.

As starting points for this system of streets, they used the North Pole and the South Pole."

1. What is the North Pole?
2. What is the South Pole?
3. Put these two poles on the globe below.

---

The first line that they put in was the equator. This line was exactly half-way between the poles, and it went east-west around the globe. It divided the world into two hemispheres.

1. Draw the equator line where it belongs on your picture of the globe. Remember, this is not a real line. It is a make-believe line.

There are four other imaginary lines on the globe that help us to find places. These have been given special names and are usually shown with dash lines like this --------------.

Let's look at the globe and wall map and see if we can find the names of these other imaginary lines.

1. Find the one that is nearest the North Pole.
2. This imaginary line is called the ________

3. Put this name where it belongs on your globe.
4. What imaginary line do you see between this line and the equator? It is called the ________ ________ ________
5. Put it on your globe.
6. This imaginary line is ________ of the North Pole and ________ of the equator.
7. Find the line that is nearest the South Pole. It is called the ________ ________ ________
8. Write it on your globe on the correct line.
9. The imaginary line between this one and the equator is called the ________ ________ ________.
10. This line is ________ of the equator and ________ of the South Pole.

24. IMAGINARY LINES

Pupil Activity

Our world is a great round ball. The globe is a model of the world because it is a small round ball.

Whenever we look at a globe, we see many lines which form circles around the earth. These are not real lines because it would not be possible to draw them on our huge earth. They do, however, have real names.

These imaginary lines have been placed on the globe below. Each has been given a number.

Two of the numbers stand for places on the earth.

Directions:
Put each number beside the name of the place or the line for which it stands. Be careful. There is one extra answer.

_____ South Pole
_____ Cape of Good Hope
_____ Equator
_____ Arctic Circle
_____ Tropic of Capricorn
_____ North Pole
_____ Antarctic Circle
_____ Tropic of Cancer
25. VOCABULARY REVIEW

Pupil Activity

The words in the column on the right are names of continents, oceans and imaginary lines.

Put a check (√) in one of the boxes beside the word to show which of these things each word is. If a word could be two of these things, put a check in two boxes.

<table>
<thead>
<tr>
<th>Oceans</th>
<th>Continents</th>
<th>Imaginary Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>1. Arctic</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>2. Cancer</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>3. Antarctica</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>4. Atlantic</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>5. Equator</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td>6. Asia</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td>7. North America</td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td>8. Capricorn</td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td>9. Australia</td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td>10. Europe</td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td>11. Indian</td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td>12. Pacific</td>
</tr>
<tr>
<td>13.</td>
<td></td>
<td>13. Africa</td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td>14. South America</td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td>15. Antarctic</td>
</tr>
</tbody>
</table>
26. SYMBOLS

Teacher-Pupil Activity

Symbols are figures or signs which stand for something special. Everything on the map is shown by a symbol. Many of the symbols look like the thing for which they stand. The more map symbols that you know and understand, the more a map can tell you.

If you were making your own map, you could make up your own symbols. However, people who make our maps for us use the same symbols on all the maps so that people in many lands and of all ages can read the map quickly because they know what the symbols mean.

Here are a few of the common symbols and the special things for which they stand:

- Mountains
- Irregular coastline
- City
- Desert
- Capital
- River
- Water
- Street
- Seaport
- Railroad
- Forest
- Regular coastline
- Lake
- Navigable river

1. Who can explain the difference between a regular and an
irregular coastline?

2. Find the word "navigable" in your dictionary. What does it mean?

When your father takes the family for a ride, he has to read symbols. Do you know what these symbols mean? Where would you see them?

\[\text{\includegraphics[width=0.5\textwidth]{symbol}}\]

Look at any maps that you have at home and see if you can find other symbols.

Draw the symbol for each of these. Look at your first sheet.

Draw them carefully.

seaport
river
irregular coastline
forest
capital
water
street
mountains
railroad
navigable river
city
desert
27. REVIEW OF SYMBOLS

Pupil Activity

A Matching Quiz:

Each symbol has been given a number. Put each number on the line in front of the word for which it stands.

<table>
<thead>
<tr>
<th>Number</th>
<th>Symbol</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>![railroad symbol]</td>
<td>railroad</td>
</tr>
<tr>
<td>2</td>
<td>![capital symbol]</td>
<td>capital</td>
</tr>
<tr>
<td>3</td>
<td>![forest symbol]</td>
<td>forest</td>
</tr>
<tr>
<td>4</td>
<td>![mountain symbol]</td>
<td>mountain</td>
</tr>
<tr>
<td>5</td>
<td>![seaport symbol]</td>
<td>seaport</td>
</tr>
<tr>
<td>6</td>
<td>![navigable river symbol]</td>
<td>navigable river</td>
</tr>
<tr>
<td>7</td>
<td>![lake symbol]</td>
<td>lake</td>
</tr>
<tr>
<td>8</td>
<td>![street symbol]</td>
<td>street</td>
</tr>
<tr>
<td>9</td>
<td>![desert symbol]</td>
<td>desert</td>
</tr>
<tr>
<td>10</td>
<td>![river symbol]</td>
<td>river</td>
</tr>
<tr>
<td>11</td>
<td>![city symbol]</td>
<td>city</td>
</tr>
<tr>
<td>12</td>
<td>![water symbol]</td>
<td>water</td>
</tr>
<tr>
<td>13</td>
<td>![regular coastline symbol]</td>
<td>regular coastline</td>
</tr>
<tr>
<td>14</td>
<td>![irregular coastline symbol]</td>
<td>irregular coastline</td>
</tr>
</tbody>
</table>
28. REVIEW OF SYMBOLS
Pupil Activity

This is an imaginary map. Symbols, which are small pictures or signs which stand for the real object, have been used to stand for real things that you would see if you took a trip through this land.

Words for which these symbols have been used are in the group below the map.

railroad  city  irregular coastline
seaport  lake  regular coastline
forest  road  navigable river
desert  mountains
29. VOCABULARY BUILDING

Teacher-Pupil Activity

You have learned that the symbol for a river is a line. It is usually a wavy line and looks like this ~. If the line is double like this ~, it is a navigable river. You have learned that a navigable river is one that is wide enough and deep enough for ocean-going ships.

When rivers join a larger river or flow into it, we call them tributaries because they give or contribute their water to the larger river.

Here is a picture of a large river and its tributaries.

1. How can you tell which is the main part of this river?
2. Who would like to draw a picture of a river and its tributaries on the board?
3. Let's draw a picture of a river and tributaries in the space below.
The Congo River and its tributaries are shown on the map below.

1. Put your finger on the Congo River on this map.

2. Color the river and its tributaries blue.

3. Who can go to the wall map and point to some of the tributaries of this river?

The Congo River and its tributaries drain the land through which they flow.

What do a river and its tributaries do when they drain the land?

Land drained by a river and its tributaries is called a river basin.
5. Find the Congo River Basin on your map and color it green.

A river usually flows from high to low land and the place where it begins is called its source.

6. Who can point to the source of the Congo River on the wall map?

7. Put an S at the source of the Congo River on your map.

8. Put an S at the source of each of its tributaries.

The place where a river flows into another body of water is called the mouth of the river. The mouth is the place where the river ends.

9. Who can go the wall map and point to the mouth of the Congo River?

10. Into what large body of water does this flow?

11. In what direction does the Congo River flow?

12. Who can show us the mouths of the tributaries of the Congo River?

13. Into what body of water do these flow?

14. Put an M at the mouth of the Congo River.

15. Put an M at the mouth of each of its tributaries.
30. DELTA
Teacher-Pupil Activity

The Amazon is not the longest river in the world, but more water flows from it into the ocean than from any other river in the world. Much of this water comes from the heavy rains which always fall in lands near the Equator.

The Amazon River flows slowly because the land around it is mostly level. The river, however, does pick up and carry a great deal of mud to the mouth of the river. Here it sinks to the bottom. After many years the mud which sinks forms small islands. The Amazon has several mouths because it flows in several streams or branches between these islands to the ocean.

Land built up in this way at the mouth of a river is called a delta. As time goes on, more mud is added, and a flat, fan-shaped piece of land is formed at the mouth.

A delta would look somewhat like this.

1. Put an M at each mouth of this river.
2. Draw a circle around the delta.
3. Color the river and the ocean blue. Color the land brown.
31. MAP OF SOUTH AMERICA

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Thurston and Hankins, op. cit., p. 101.
32. AMAZON RIVER BASIN
Teacher-Pupil Activity

One of the mightiest rivers in the world, the Amazon, has its source in the mountains on the west coast of South America.

1. Find this river on your map.
2. Put an S at its source in the mountains on your map.
3. Who would like to find these mountains on the wall map and tell us their name?
4. Write the name on the mountains on your map.

The Amazon River is nearly 4,000 miles long, and it has hundreds of tributaries that flow into it from the north, south and west.

5. In what direction would you travel from the source to reach the mouth of the Amazon River? Use the direction key in the corner of your map.
6. Put an M at the mouth of this river.
7. Go over the Amazon River and its tributaries with your blue crayon.

The Amazon and its tributaries drain a large part of the continent of South America. This land that is drained by the river is called the Amazon River Basin.

When map makers color their maps, they use dark brown for high mountains and green for lowlands. Most of this river basin is lowland.

8. Color the Amazon River Basin green. Color the Andes brown.
9. In the lower right-hand corner of your map, draw a box and put in a key to show the meaning of each color that you used.

33. VOCABULARY BUILDING

Teacher-Pupil Activity

Water flows downhill or from high to low land.  
Downstream means down the river in the direction toward which the water is flowing. **Downstream** is always toward the mouth of the river. It is easy to go downstream because you are going with the current.

Upstream means up the river in the direction from which the water is flowing. **Upstream** is always toward the source of the river. It is hard to go upstream because you are going against the current.

The map below shows a river and its tributaries.

Put an **M** at the mouth of the river.

Put an **S** at the source of the river.

Complete the following by putting in the word **downstream**
or the word upstream. Use your direction key on the right of the map.

1. If you were traveling from east to west on the main river, you would be going ________. Show this by putting in an arrow.

2. If you were traveling from the source of the big river to its mouth, you would be going ________.

3. If you went north on tributary A, you would be going ________. Show this by putting in an arrow.

4. If you went south on tributary B, you would be going ________. Show this by putting in an arrow.

Now, see if you can do the next exercise without any help. Study the map below carefully.

Fill in the blanks in the sentences below. Choose your answers from this group of words:

DOWNSTREAM MOUTH COASTLINE SOURCE UPSTREAM OCEAN

1. Letter A shows the _________ of the river.

2. Letter B shows the _________ of the river.

3. Letter C shows the _________.

4. Letter D shows the _________.

---

1 Atwood and Thomas, op. cit., p. 16.
4. Letter D shows the ____________.
5. The arrow at number 1 is pointing ____________.
6. The arrow at number 2 is pointing ____________.
7. When you go downstream, you are going toward the ____________.
8. When you travel upstream, you are going to the _____.

34. LAND AND WATER FORMS
Teacher-Pupil Activity

Here is an imaginary map. The places which are numbered have special names.

1. Number 1 shows us part of a large body of land called a continent.
   Make a circle around number 1.
2. Number 2 shows us a piece of land almost surrounded by

   1Atwood and Thomas, op. cit., p. 2.
water. It is called a peninsula.

Draw a cross (X) through number 2. Show that you know where the peninsula is by going around the edge with your finger.

Now, trace the coast of the peninsula with your red crayon.

3. Number 3 shows us land surrounded entirely by water. Make a (✓) on top of number of number 3. Go around the edge of the island with your purple crayon.

4. Number 5 shows us a body of water surrounded by land. It is called a lake.

Draw a line (—) through number 5. Color the lake blue.

5. Number 6 shows us a body of water going into the land. It is called a bay.

Put a small circle around number 6. Go along the coastline of this bay with your finger.

Now, put this coastline in with your black crayon.

6. Number 7 shows us a large body of water going into the land. It is like a large bay. It is called a gulf.

Make a square around number 7. Go around the coast of the gulf with your green crayon.

7. Number 4 shows us the ocean.

Draw two lines (//) through number 4.

Color the ocean, bay, and gulf blue.

Study these sheets until you can answer the questions below.
1. What is a continent?
2. What is a peninsula?
3. What is an island?
4. What is a lake?
5. What is a bay?
6. What is a gulf?

35. REVIEW OF LAND AND WATER FORMS

Pupil Activity

The following bodies of land and water are shown on the map below:

1. an island .......... land surrounded by water
2. a bay ............. part of the ocean going into the land
3. a peninsula ...... land almost surrounded by water
4. a gulf ............ a large bay
5. an ocean ........... a very large body of water
6. a lake ............. a body of water surrounded by land
Fill in the blanks below by using the groups of words given above on the left.

1. Letter A pictures
2. Letter B pictures
3. Letter C pictures
4. Letter D pictures
5. Letter E pictures
6. Letter F pictures

The letters on the map are used instead of the names of the bodies of land or water. Beside each letter on the map write the name of the land or water form that it pictures.

1. Color the peninsula dark brown.
2. Color the lake blue.
3. Draw a small sailboat in the gulf.
4. Draw in a road going from the lake to the bay.
5. Color the island light brown.

36. AN IMAGINARY MAP
Teacher-Pupil Activity

The six words below are the names of special bodies of land and water.

You are going to draw an imaginary map that will show these as they would look if you were in an airplane looking down at them.

Read carefully the name of each special body of land and water and its meaning.

1. an ocean ....... a very large body of water
2. a bay ............ part of the ocean reaching into the land
3. an island ..... land with water all around it
4. a peninsula ... land with water on three sides
5. a lake ............ a body of water surrounded by land
6. a gulf ............ a large part of the ocean that reaches into the land

Oral Discussion:
1. What is an ocean? 4. What is a peninsula?
2. What is a bay? 5. What is a lake?
3. What is an island? 6. What is a gulf?

Drawing the Map

Start your map on a separate piece of paper. Draw a large body of land with an irregular coastline. Be sure a good part of this land goes to the edge of the paper.
1. What is a lake? Where would you put the lake? Draw in the lake.

2. What is the difference between a bay and a gulf? Draw the bay. Draw the gulf.

3. What is the difference between an island and a peninsula? Draw an island. Draw a peninsula.

4. Put number 1 in the middle of the ocean.

5. Put number 2 in the bay.

6. Put number 3 in the gulf.

7. Put number 4 in the lake.

8. Put number 5 on the island.


10. Color the water blue.

11. Color the land brown.
MAP SYMBOLS

Pupil Activity

The map above shows the land and water forms or shapes that you have studied. If you were in the air looking down on this region, it would look as it is pictured on this map.

Directions:
1. Study the list of land and water forms.
2. Study the map.
3. When you think you know what a numbered part of the map pictures, put the number on the line beside the right word.
38. CROSSWORD PUZZLE
Pupil Activity

Each number on this puzzle stands for a word. The number of blocks across tells the number of letters in each word.

Number 1 is a three letter word that means a body of water reaching into the land.

What is the three letter word that means a body of water reaching into the land? Put one letter in each block.

Finish the puzzle in the same way.

1. a body of water reaching into the land
2. a large bay
3. a moving stream of water
4. an ocean at the north
5. an imaginary east-west line
6. very high land
7. a large body of land
8. bodies of land almost surrounded by water
39. REVIEW OF DIRECTIONS AND SCALE OF MILES

Teacher-Pupil Activity

This is an enlarged map of part of the Amazon River. The scale of miles below the map tells us that each one-half inch on this paper stands for about 200 miles on the earth's surface.

On a small piece of paper, mark off the scale of miles. Use this as you would use your ruler to measure the distance from one place to another. Be sure to measure from the center of each dot.

1. About how far is it from the arrow at the end of the river to the city located at A? __________

2. Village B is about _______ miles north of city A.

3. Village C is about _______ miles west of city A.

4. Village C is about _______ miles southwest of village B.

5. City A is a port for ocean-going ships. What does this tell you about this part of the river?

6. If you were going from the mouth of the river toward A, would you be going upstream or downstream?

7. In which direction would you travel if you were at A to reach the village located at B?

8. In which direction would you travel if you wanted to go from the village at B to the village at C? Remember that the rivers are the roads through the thick jungle.

9. In going from village B to village A would you go upstream or downstream?

10. Which village is north of the equator?

11. Which village is nearest the equator?

12. Which village is nearest the source of the Amazon River?

13. Which of the three places is nearest the mouth of the Amazon River?

14. Draw a circle around the delta of the Amazon River.
40. MAP OF THE EASTERN HEMISPHERE

41. ISTHMUS AND CANAL

Teacher-Pupil Activity

Look at your map of the Eastern Hemisphere.

1. Which continent is connected to the continent of Asia by a narrow neck or strip of land?

2. Point to this narrow strip of land on your map.
3. Draw a circle around this piece of land on your map.

A narrow strip or neck of land that connects two larger bodies of land is called an ISTHMUS.

4. What is an isthmus?
5. Locate this isthmus on the wall map.

The isthmus between Africa and Asia is called the Isthmus of Suez.

A canal has been dug across this isthmus so that boats can go from the Mediterranean Sea, which is between Africa and Europe, to the Red Sea, which is between Africa and Asia.

A CANAL is a man-made waterway, and the symbol on the map for a canal would look like this ————.

6. Find the Mediterranean Sea on your map. Put M on this sea.

7. Find the Red Sea on your map. Put R on this sea.
8. Draw a picture of an imaginary isthmus connecting two larger bodies of land in the box below.

9. Draw a canal across the isthmus you have drawn.

There is another isthmus that connects the continents of North America and South America. It is called the Isthmus of Panama.

10. Look on your globe or wall map and see if you can find it.

A canal has been dug across this isthmus so that boats can go from the Atlantic Ocean to the Pacific Ocean without going all the way around South America. This canal is called the Panama Canal.
42. MAP OF THE EASTERN HEMISPHERE

---

43. MAP OF THE WESTERN HEMISPHERE

44. MAP OF NORTH AMERICA

---

Stull and Hatch, op. cit., p. 61.
45. **STRAIT**

Teacher-Pupil Activity

Part I.

1. Look at your map of the Eastern Hemisphere.
2. Find the continents of Europe and Africa. Put a finger on each of them.
3. The continents of Europe and Africa are separated by a very narrow strip of water.
   Who would like to find this body of water on the wall map?
4. Find this narrow body of water on your map.
5. Draw a circle around it.
6. This narrow strip of water is called the **Strait of Gibraltar**.
   A **STRAIT** is a narrow body of water that connects two larger bodies of water.
7. What is a strait?
8. Put the name of this strait in the right place on your map.
9. Can someone show us the large body of water that is west of Europe and Asia?
10. This body of water is called the ______ ______ Ocean.
11. Put this name on the right place on your map.
12. There is a large body of water between Europe and Africa. Will someone find its name on the wall map and write it on the board for us?
13. Put this name on the right place on your map.

14. Draw an imaginary picture of a strait connecting two larger bodies of water in the box below.

15. Color the water in your picture blue and the land brown.

On one of your other map exercises you found the Panama Canal. You learned that this canal was a man-made waterway that had been dug across the Isthmus of Panama between North America and South America so that ships could go from the Atlantic Ocean to the Pacific Ocean without going all the way around South America.

1. Who can show us where this is on the wall map?

2. Find the Panama Canal on your map of the Western Hemisphere. Put your finger on it.

3. Put an (X) on your map where you think the canal is.

Before the Panama Canal was built, a great Portuguese explorer named Ferdinand Magellan discovered a shorter way to travel around South America. He discovered a strait at the southern tip of South America. It was named for him. It is called the Strait of Magellan.

4. Let’s see if we can find the Strait of Magellan on our wall map. Who would like to help?
5. What two large bodies of water does this strait connect?
(a) ____________________ (b) ____________________

6. Draw an arrow pointing to the Strait of Magellan on your map.

PART II

On your map of North America there are many other straits. Let's see if we can find them together.

1. The Bering Strait is between Asia and North America. Can you put your finger on it on your map?

   This strait connects two large bodies of water. They are the __________ Ocean and the __________ Ocean.

2. The Davis Strait is between Baffin Island and Greenland. Put your finger on it. This strait connects _________ Bay and the __________ Ocean.

3. The Denmark Strait is between Greenland and Iceland. Put your finger on it. This strait connects what two bodies of water? (a) ____________________
(b) ____________________

Now, let's see if we can put these straits in the right places on our map of the Western Hemisphere.

We haven't room to write out the names, so we'll use numbers in place of the names.

Use number 1 for Bering Strait. Use number 2 for Davis Strait. Use number 3 for Denmark Strait.

Study your maps carefully, and then we'll see how quickly we can locate these on the globe and on the wall map.
46. THE COMPASS - A REVIEW

Pupil Activity

This is a drawing of a compass.

The needle is pointing North.
The letter N stands for North.
Three other main directions and four in-between directions have not been marked on the compass.

Directions:
Put the seven directions which are missing on the right lines.

Use the letters below which stand for each direction.

E - East  SE - Southeast
W - West   NW - Northwest
S - South  NE - Northeast
SW - Southwest
47. REVIEW OF OCEANS AND CONTINENTS

Pupil Activity

There are four large bodies of water called oceans. There are seven very large bodies of land called continents.

All of the oceans and continents are named below.

Directions:

If the word or group of words names an ocean, put O on the line beside it. If it names a continent, put a C on the line beside it.

__________ North America
__________ Atlantic
__________ Indian
__________ Asia
__________ Europe
__________ Antarctic
__________ Africa
__________ Pacific
__________ South America
__________ Arctic
__________ Australia
In the list of words at the bottom of the page there are the names of seven continents, four oceans, and five imaginary lines.

Put each name in the right place on this chart. Be careful. You will not need to use all of the words.

<table>
<thead>
<tr>
<th>Oceans</th>
<th>Continents</th>
<th>Imaginary Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
<td>1.</td>
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<td>2.</td>
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<td>5.</td>
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<td>6.</td>
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<tr>
<td>7.</td>
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</tr>
</tbody>
</table>

United States  Europe         Tropic of Capricorn
Tropic of Cancer Antarctica  Boston
Pacific         China          Africa
Antarctic Circle Atlantic      Indian
Australia       Arctic         Massachusetts
Equator         South America  Asia
North America   Lynn           Arctic Circle
49. VOCABULARY REVIEW

Pupil Activity

The words that belong in the blank spaces are at the bottom. Each blank space has been given a letter. Read each sentence carefully. Decide which word at the bottom would best complete each sentence. Put the letter that is in the blank in the circle beside the correct word.

Example: Noon day shadows in our part of the world always point almost directly __A__.

The correct answer is "north" so the letter A should be placed in the circle beside the word "north" at the bottom of the page. Put it there.

Do the same for the other sentences.

1. West is the direction of the __B__.
2. When you face toward the sun in the early morning, you are facing __C__.
3. Away from the center of the earth is __D__.
4. Toward the center of the earth is __E__.
5. The direction toward which the river flows is __F__.
6. The mouth of the river is where the river __G__.
7. You are going upstream when you go from the mouth of a river to its __H__.
8. A __I__ is a narrow body of water that connects two larger bodies of water.
9. The source of a river is where the river __J__.
10. A body of land almost surrounded by water is a ___.
downstream peninsula east up
strait begins down ends
source sunset north

50. VOCABULARY REVIEW
Pupil Activity

Finish each sentence below by writing the correct word in the box.

All of the words that you will need are given in the column on the left. Be careful. You will not need all of the words.

delta 1. Land that is drained by a river and its isthmus tributaries is called a[delta].
earth 2. A [____] is part of an ocean channel or any other body of water that reaches desert into the land.
lake 3. Very large bodies of land are called [equator].
bay 4. A [____] is formed by mud source dropped by a river at its mouth.
volcanoes 5. The driest lands of the earth are called [hemispheres].
geography 6. The [river basin] or [world] is the round ball on which we live.
island
continents

7. The _ is an imaginary line that makes a circle around the middle of the earth.

8. A _ is a body of water surrounded by lands.

9. The equator divides the world into two equal parts called _.

10. An _ is a narrow neck of land joining two larger bodies of land.

51. VOCABULARY REVIEW

Pupil Activity

Here are the names of some bodies of land and water that you have found many times on maps.

Show how each would look on the map by drawing a small picture in the box beside the word.

Color the land brown and the water blue.

an island

a river and its tributaries
52. CROSSWORD PUZZLE

Teacher-Pupil Activity

In a crossword puzzle one letter of the word is placed in each box.

Sometimes the letter in the box will help to make a word going across and also a word going down. Numbers 1 and 9 are used going down and also across. Let's do this crossword puzzle together.
Down
1. water going into land
2. land built up at the mouth of a river
3. signs for real things
4. branch of a river
5. another word for world
6. a line measuring distances on maps
7. an inland body of water
8. a moving stream of water
9. end of a river
10. place for unloading boats
11. an inland body of water surrounded by land
12. opposite south

Across
1. model of the world
9. small pictures of part of the world
13. a small body of water reaching into the land
14. neck of land connecting two larger bodies of land
15. dry lands
16. a point of land reaching out into the water
17. a large body of salt water
BIBLIOGRAPHY


